"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

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SUPRUNENKO, D. A., Doklady Akademii Nauk BSSR, Vol 14, No 4, 1970, pp 305-308

where g_j ranges over the irreducible subgroup G_j of the group $GL(n_j,D)$; for $n_j > 1$ $G_j \supset SL(n_j,D)$, $j = 1, \ldots, n$, $n_1 + \ldots + n_t = n$.

In the case in which the body D is commutative the maximum solvable subgroups of the group (GL(n,D) containing U(n,D) are found.

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USSR

UDC 532

KUZ'MENKO, P. P., SUPRUNENKO, P. A., and CHIRKO, L. I., Kiev State University

"State of Sn-Bi Alloys According to Data of a Study of Magnetic Susceptibility"

Kiev, Metallofizika, No 40, 1972, pp 68-72

Abstract: Results are presented from a study on the magnetic susceptibility of tin, bismuth, and their alloys (10, 20, 30, 40, 43, 50, 60, 70, 80, and 90 at.% Bi) in the solid and liquid states. The feature of the concentration relationship of magnetic susceptibility of liquid alloys containing approximately 20 at.% was noted. On the basis of the values of m/m^*, obtained in the work (m--free electron mass, m*--effective electron mass), there was noted a tendency of conductivity electron interaction in Sn-Bi melts. 3 figures, 1 table, 24 bibliographic references.

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USSR

UDC 538.214

BUTYLENKO, A. K., SUPRUNENKO, P. A., and KAL'NAYA, G. I., Institute of Metal Physics, Academy of Sciences Ukr SSR and Kiev State University

"Coexistence of Antiferromagnetism and Superconductivity in the Cr-Re System"

Kiev, Metallofizika, No 40, 1972, pp 61-64

Abstract: A comparison is made between known data and experimental data on the change of physical properties in the region of solid solutions of rhenium in chromium in connection with the observed transition, in relation to concentration, of the alloys from the antiferromagnetic state to superconductivity. The hypothesis was expressed that the indicated transition can be caused by the occurrence of ordering in the alloys with the formation of a superconducting phase of the type beta-W(Cr_3O) and that with the ordering processes there can be associated superconducting properties of the alloys in similar morphological systems Mo-Re, W-Re, and others. 2 figures, 27 bibliographic references.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

USSR

SUPRUNENKO, V. A., SUKhOMLIN, Ya., and TOLOK, V. T.,

"Current Heating of a Dense Plasma with Collective Interactions in a High-Current Gas Discharge"

Kiev, Fizika Plazmy i Problemy Upravlyayemogo Termoyadernogo Sinteza, No 4, 1973, pp 5 - 15

Abstract: Previous studies have shown that the physical processes occurring in a high-current gas discharge in powerful electrical fields are substantially influenced by the collective interactions of plasma particles with the fields of excited waves. It has been shown that high-frequency instabilities accompanied by microwave radiation can arise, retarding the drift of electrons and stabilizing its velocity at a fixed level. Experiments have also shown the existence of anomalous plasma resistance, leading to the spread of the turbulent method of heating. The development of high-frequency instabilities has been shown to produce effective heating of the electron and ion components of the plasma.

Analysis shows that the anomalous resistance and effective heating of electrons and ions are the result of a complex combination of current instabilities which arise in sequence as various criteria are met in a high-current gas discharge.
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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

(12)

USSR UDC 533.92:621.039.61

ALEKSIN, V. F., BIRYUKOV, O. V., VISHNEVETSKIY, V. N., GEORGIYEVSKIY, A. V., GROT, Yu. I., DIKIY, A. G., ZISER, V. Ye., KITAYEVSKIY, L. KH., KONOTOP, P. I., POGOZHEV, D. P., PELETMINSKAYA, V. G., SERGEYEV, Yu. F., SMIRNOV, V. G., SUPRUNENKO, V. A., TOLOK, V. T., and TARAN, V. M.

"Development and Synthesis of the "Uragan" Stellarator and Investigation of Magnetic Surfaces of High Shear"

Kiev, Fizika Plasmy i Problemy Upravlyayemogo Termoyadernogo Sinteza (Plasma Physics and Problems in Controlled Thermonuclear Synthesis -- collection of works) "Naukova dumka," No 3, 1972, pp 73-112

Abstract: After an initial section devoted to a review of the literature on the magnetic surfaces of toroidal stellarators and the principles of stellarators in general, the authors analyze the "Uragan" specifically. In particular, this paper is concerned with the problems involved in choosing the parameters of the magnetic system for the racetrack stellarator to obtain magnetic surfaces with high shear. This last term is defined as the extent of crossing of the magnetic lines of force. The synthesis and adjustment of the magnetic system are also examined, and

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(13)

USSR

ALEKSIN, V. F., et al., Fizika Plasmy i Problemy Upravlyayemogo Termoyadernogo Sinteza, "Naukova dumka," No 3, 1972, pp 73-112

the results are given of an investigation into the instrument's magnetic surfaces. Computations worked out on an electronic computer for the design of the magnetic system are described, and differences between the "Uragan" and the "Sirius" stellarators are indicated. A comparative table of the parameters for various types of stellarator is given; it shows that the "Uragan" is one of the more powerful thermonuclear machines, with a high shear value for its substantial 10 koersted magnetic field intensity. This article is liberally illustrated with photographs and line drawings and has a bibliography of 51 titles.

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USSR

UDC 533.92.621.039.61

FARENIK, V. I., VLASOV, V. V., ROZHKOV, A. M., STEPANOV, K. N., SUPRUNENKO, V. A., and YAKIMCHUK, Yu. V.

"Study of the Radial Structures in the Oscillations of a Plasma Column in Crossed Fields With Cyclotron Resonance Instabilities"

Kiev, Ukrainskiy Fizicheskiy Zhurnal, No 3, 1973, pp 394-396

Abstract: Experimental results are given for the investigation of cyclotron resonance instabilities in a collisionless rotating plasma in a uniform, longitudinal magnetic field. The basic experimental equipment is the same as that described in an earlier article (A. M. Rozhkov, et al, UFZh, 14, 1969, p 1856) except that this earlier equipment used crossed electric and magnetic fields. Experiments with the equipment of the present paper were conducted at a gas pressure of 10^{-5} mm Hg. The curve plotted for the amplitude of the ionic cyclotron oscillations as a function of the uniform magnetic field intensity differs essentially from that for the nonuniform field. It was also found that oscillations of various frequencies were localized in different radial layers, and that the oscillation intensity was of a resonance nature. The authors thank V. L. Sizonenko and V. T. Tolok for their comments.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

USSR UDC 533.9

VISHNEVETSKIY, V.N., VOYTENKO, D. A., VOLKOV, YE. D., DIKIY, A. G., ZALKIND, V. M., KONOTON, P. I., MOISEYEV, S. S., PAVLICHENKO, O. S., PASHNEV, V. K., SUPRUNENKO, V. A., TOLOK, V. T., TERESHCHENKO, F. F., TONKOPRYAD, V. M., and TARASENKO, V. P., Physico-Technical Institute of Academy of Sciences Ukrainian SSR, Kharkov

"Energy Losses of Plasma in a 'Uragan' Stellarator With Large Shear"

Kiev, Ukrainskiy Fizicheskiy Zhurnal, Vol 16, No 8, Aug 71, pp 1320-1323

Abstract: Investigations of the rate of energy losses in plasma have shown that the holding time of particles significantly exceeds the energy life time when the plasma is of collision type. This article discusses the results of investigations on the rate of energy losses of collision-type plasma for the "Uragan" stellarator. The authors study the dependence of energy life time of the plasma on the amount of shear and the angle of conversion. They make extensive use of graphs to illustrate their findings and find that the experimental points lie on a straight line. The authors conclude that the results may be explained on the basis that a temperature-drift instability develops in the plasma. The article contains 5 figures and 8 bibliographic entries.
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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

USSR

UDC 533.916

ROZHKOV, A. M., STEPANOV, K. N., SUPRUNENKO, V. A., FARENIK, V. I.

"Investigating the Excitation of Ion-Cyclotron Oscillations in a Plasma in Crossed Electric and Magnetic Fields"

Kiev, Fizika plazmy i problemy upravlyayemogo termoyadernogo sinteza, 1971, Naukova dumka, pp 14-18

Abstract: A description is given of experiments detecting unstable ion-cyclotron oscillations with a frequency of the order of the plasma rotational velocity. As a result of the development of the oscillations, high-energy ions with an energy of the order of 1 kev and a velocity direction along the magnetic field appear. The longitudinal and transverse wavelengths of the cyclotronic oscillations are of the order of 1 cm. At the beginning of the instability development, when the Larmor radius of the ions is much less than the radius of the plasma cylinder, the oscillations can be identified as longitudinal cyclotronic with a phase velocity along the magnetic field much less than the electron thermal velocity.

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ROZHKOV, A. M. et al, Fizika plazmy i problemy upravlyayemogo termoyadernogo sinteza, 1971, Naukova dumka, pp 14-18

As the plasma heats up due to the increasing instability, the Larmor radius increases to the point where it is commensurate with the system dimensions. A diagram of the experimental setup is presented along with an explanation of its operation. The authors suggest that study of this new type of plasma instability may be useful for understanding experimental results in the heating of the ionic plasma component, in which the radial electric field is either created deliberately or is spontaneously generated.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

TITLE--OBSERVATION OF PLASMA SATELLITES NEAR HEI FORBIDDEN LINES DURING TURBULENT HEATING OF A PLASMA -U-

AUTHOR-(05)-ZELENIN, G.V., KUTSYN, A.A., MAZNICHENKO, M.YE., PAVLICHENKO, O.S., SUPRUNENKO, V.A.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58, NR 6, PP 1879-1883

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--TURBULENT PLASMA, SATELLITE, GAS DISCHARGE, FORBIDDEN BAND, ELECTRON DENSITY, PLASMA OSCILLATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/1727 STEP NO--UR/0056/70/058/006/1879/1883

CIRC ACCESSION NO--AP0120439

UNCLASSIFIED

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UNCLASSIFIED

IRC ACCESSION NO--AP0120439 PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SATELLITES IN A TURBULENT PLASMA OF A STRONG CURRENT LINEAR GAS DISCHARGE (Z PINCH) HAVE BEEN DETECTED AND INVESTIGATED NEAR THREE FORBIDDEN LINES OF HEI. THE SATELLITES HAVE BEEN PREDICTED BY BARANGIER AND MOSER. TIME MEASUREMENTS OF THE POSITION AND INTENSITY OF THE SATELLITES YIELD THE ELECTRON DENSITY AND THE TIME VARIATION OF THE LEVEL OF THE PLASMA OSCILLATIONS. OBSERVATION OF SATELLITES IS A NEW CONTACTLESS METHOD FOR INVESTIGATING A TURBULENT PLASMA. FACILITY: FIZIKO-TEKHNICHESKIY INSTITUT AN UKR, SSR.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

Acc. Nr: AP0043676

Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1970, Vol 58, Nr 2, pp 551-557

EFFICIENCY OF CURRENT HEATING IN A DENSE PLASMA OF A STRONG CURRENT GAS DISCHARGE

Manzyuk, N. A.; Suprunenko, V. A.; Sukhomlin, Ye. A.; Ternopol, A. M.

The physical efficiency of current heating of a dense plasma in a strong current gas discharge stabilized by a strong magnetic field is considered. The heating efficiency is of the order of 60%. Current heating is the result of successive development of a number of streaming instabilities and takes place as long as the current flows in the active region of the discharge. The value of the plasma thermal energy density previously obtained ($nkT = 3 \cdot 10^{18}$ eV/cm^3) is confirmed.

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UDC 621.039.623

USSR

ALEKSIN, V. F., BIRYUKOV, O. V., GEORGIYEVSKIY, A. V., KITAYEVSKIY, L. KH., KOMAR, YE. G., LUGINOV, A. S., MALYSHEV, I. F., MOROZOV, N. A., POPKOVICH, A. V., ROZHDESTVENSKIY, B. V., SAKSAGANSKIY, G. L., SINEL'NIKOV, the late K. D., SOKOLOV, YU. A., SUPRUNENKO, V. A., TOLOK, V. T., CHURAKOV, G. F., and SHABEL'NIKOV, L. A.

"The Experimental Thermonuclear Device 'Uragan'"

Moscow, Atomnaya Energiya, Vol 28, No 1, Jan 70, pp 22-28

Abstract: An urgent task of stellarator research is a definitive elucidation of the reasons for anomalous diffusion in a stellarator, as well as the effect of the shear and magnetic well on the confinement of a hot and dense plasma. These questions will be studied on the "Uragan" stellarator. Construction of the "Uragan" stellarator was begun at the suggestion of I. V. KURCHATOV and completed in 1967. The physical substantiation and technical assignment of developing and constructing the complex were developed at the Physicotechnical

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USSR

ALEKSIN, V. F., et al., Atomnaya Energiya, Vol 28, No 1, Jan 70, pp 22-28

Institute of the Academy of Sciences Ukrainian SSR under the direction of K. D. SINEL'NIKOV, who took an active part in the solution of theoretical and technical questions. Organizations taking part in the development of the project and the construction of the complex included the Scientific Research Institute of Electrophysical Equipment imeni D. V. Yefremov, the Elektrosila Electrical Engineering Combine, the Khar'kov Polytechnic Institute imeni V. I. Lenin, the Electromechanical Plant and NIIElektroapparat [Scientific Research Institute of Electrical Equipment] in Khar'kov. A considerable amount of work on the development, manufacture, and adjustment of the systems and components of the "Uragan" was done at the Physicotechnical Institute of the Academy of Sciences Ukrainian SSR.

The principal feature of the "Uragan" is high shear (of the order of 0.02 and 0.1) at a high level of magnetic field strength

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ALEKSIN, V. F., et al., Atomnaya Energiya, Vol 28, No 1, Jan 70, pp 22-28

H_0 (35 and 10 koe respectively). The stellarator is in the shape of a racetrack and uses a high-shear triplex helical field. The vacuum chamber of the trap consists of two semi-tori with an average radius R = 1100 mm and two rectilinear sectors, each 1725 mm long. The internal diameter of the chamber is 200 mm. On the outside of the chamber on the toroidal sectors are two helical windings and longitudinal magnetic field coils, distributed evenly along the device. The maximum strength of the magnetic field is 10 koe under steady-state conditions and 35 koe under pulsed conditions. Three windings are used; viz., longitudinal magnetic field, helical, and transverse magnetic field. All metallic elements are made of low-magnet steel 1Kh18N9T. The toroidal sectors of the vacuum chamber and part of the rectilinear sectors are made of stainless nonmagnetic alloy EP-125. The article gives a detailed description of the windings, cooling system, electric power supply system, vacuum system, and plasma diagnostic and heating system.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

USSR

UDC 533.916

ROZHKOV, A. M., STEPANOV, K. N., SUPRUNENKO, V. A., FARENIK, V. I., VLASOV, V. V.

"Resonance Cyclotron Instability in a Rotating Plasma"

Fiz. plazmy i probl. upravl. termoyader. sinteza. Resp. mezhved. sb. (Plasma Physics and Problems of the Controlled Thermonuclear Fusion. Republic Interdepartmental Collection), 1972, No. 3, pp 193-202 (from RZh-Fizika, No 11, Nov 72, Abstract No 11G178)

Translation: Resonance excitation of ion-cyclotron oscillations in a plasma in crossed electric and magnetic fields was investigated experimentally. It was shown that if the frequency of the drift rotation of a plasma cloud in crossed fields is a multiple of the gyrofrequency of the ions, a resonance cyclotron instability develops in the discharge which is accompanied by continuous generation of ion-cyclotron oscillations of high amplitude, due to the energy of the external source of direct current. The increment of this instability is on the order of the gyrofrequency of the ions.

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UDC 533.92:621.039.61

USSR

ALEKSIN, V. F., BIRYUKOV, O. V., VISHNEVETSKIY, V. N., GEORGIYEVSKIY, A. V., GROT, Yu. I., DIKIY, A. G., ZISER, V. Ye., KITAYEVSKIY, L. Kh., KONOTOP, P. I., POGOZHEV, D. P., PELETMINSKAYA, V. G., SERGEYEV, Yu. F., SMIRNOV, V. G., SUPRUNENKO, V. A., TOLOK, V. T., TARAN, V. M.

"Development and Production of the Magnetic System of the 'Uragan' Stellarator and a Study of Magnetic Surfaces With Large Sheer"

Fiz. plazmy i probl. upravl. termoyader. sinteza. Resp. mezhved. sb. (Plasma Physics and Problems of the Controlled Thermonuclear Fusion. Republic Interdepartmental Collection), 1972, No. 3, pp 73-112 (from RZh-Fizika, No 11, Nov 72, Abstract No 11G279)

Translation: This paper concerns the study of the magnetic system of the three-loop "Uragan" stellarator-racetrack. Considerations concerning the selection of optimal parameters of the magnetic system of the stellarator are discussed. The equipment of the "Uragan" is briefly described. An experimental study of the magnetic surfaces made with the aid of low-energy electron beams showed that in the "Uragan" stellarator-racetrack with

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ALEKSIN, V. F., et al, Fiz. plazmy i probl. upravl. termoyader. sinteza. Resp. mezhved. sb., 1972, No. 3, pp 73-112

individually controlled cylinders there are closed magnetic surfaces with high sheer values (∿0.09) and angle of rotational conversion (∿240°). The experimental data are compared with calculated values obtained on the BESM-6 computer.

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USSR UDC 616.12-089.843-0.6:616.12-008.315-0.8:725.51

BALLYUZEK, F. V., SHANIN, Yu. N., KOSTYUCHENKO, A. L., SHCHELKUNOV, V. S., VOLKOV, Yu. N., FEDOROV, G. Z., and SUPRUNENKO, Yu. F., Clinic of hospital Surgery, Military Medical Academy imeni S. M. Kirov, Leningrad

"A Sterile Room for the Reanimation of Patients After Homotransplantation of the Heart"

Moscow, Eksperimental'naya Khirurgiya i Anesteziologiya, No 2, Mar/Apr 70, pp 84-87

Abstract: After transplantation of the heart, respiratory infections constitute one of the principal dangers to the patients because of their lowered resistance and immunity. J. Phillips and G. Spencer estimated that respiratory infections caused the death of 1/4 of patients dying after surgery involving extracorporeal, blood circulation. A sterile chamber (3.7 X 3 X 2.5 m) has been designed for the reanimation and intensive care of patients after surgery involving extensive trauma and requiring rigorous antibacterial protection. The chamber is constructed of plastic sheets welded together and has an entrance lock consisting of two overlapping, suspended plastic sheets. The chamber has connections for O_2, N_2O, and vacuum, a telephone line, and electric connections for a defibrillator and an automatic system which records and transmits outside data on the condition of the patient. Equipment for the intubation of the trachea, healing of the tracheo-

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

USSR

BALLYUZEK, F. V., et al, Eksperimental'naya Khirurgiya i Anesteziologiya, No 2, Mar/Apr 70, pp 84-87

bronchial passages, and for producing artificial coughs is located in it. Air that has been sterilized by irradiation is pumped into the chamber, in which the air pressure is higher by 7-10 mm than that outside. After 2-3 hrs. of operation of the chamber, the air in it contains no more than 0-2 possibly pathogenic bacteria per cubic meter and no pathogenic bacteria. The chamber is equipped with windows of transparent plastic, has translucent walls, and is lit from the outside. After adequate sterilization measures, a nurse who takes care of the patient may stay in the chamber and other medical personnel may enter it. The chamber ought to be adequate for the care of patients who have undergone heart transplants.

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USSR

UDC 539.3/.5:678

ABRAMOV, S. K., POZDNYAKOV, A. A., SUPRUNOV, V. A.

"Comparison of Standard Bending Tests for Rigid Plastics"

Tr. Rostov.-n/D. in-ta inzh. zh.-d. transp. (Works of Rostov-na-Donu Institute of Railroad Transportation Engineers), 1971, No. 79, pp 85-94 (from RZh-Mekhanika, No 12, Dec 71, Abstract No 12V1722)

Translation: It is noted that the testing of rigid plastics was standardized in all countries in connection with its simplicity and information yield. Differences in technique consists basically in the dimensions of the sample, the size of the arc and the rate of loading. According to GOST 4648-63 the span is equal to 10 thicknesses of the sample, according to standards of the Federal Republic of Germany, Japan, and ASTM D790-63, the span is equal to 16 thicknesses and the rate of deformation is 0.01 min^{-1}, or approximately 10 times less than recommended by GOST. Analysis of available data leads to the conclusion that test results according to GOST raise the strength limits under bending by a factor of 1.1-1.3 as compared with other methods. It is shown that the slight divergence is associated with the nonlinearity of the dependence of stress on deformation up to the point of breakdown; with linearity of this dependence the discrepancy can theoretically reach a factor of 1.6. V. N. Geminov.

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1/2 015 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--PREPARATION OF SPECIAL PETROLEUM SINTERING ADDITIVES FOR COKING COAL CHARGES -U-

AUTHOR--SUPRUNOV, V.V., LEVIN, I.S.

COUNTRY OF INFO--USSR

SOURCE--KHIM. TVERD. TOPL. 1970, (1), 104-9

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--PETROLEUM PRODUCT, COAL, ASPHALT, COKE, MECHANICAL STRENGTH, BENZENE, SINTERING FURNACE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REFL/FRAME--1990/2044 STEP NO--UR/0467/70/000/001/0104/0109

CIRC ACCESSION NO--AP0109976

UNCLASSIFIED

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

2/2 015 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0109976

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE PREPN. INVOLVED THE CONSECUTIVE OXIDATIVE AND THERMAL CONDENSATION AT 250 AND 350-70DEGREES, RESP., OF HEAVY PETROLEUM RESIDUES LIKE CRACKING RESIDUES, ASPHALTS, AND DEASPHALTIZATION RESIDUES. THE SCHEME AND DESCRIPTION OF A LAB. OXION. APP. ARE GIVEN. THE PROPERTIES OF THE RESIDUES AND THE MECH. STRENGTH OF THE RESULTING COKES ARE TABULATED. THE EXPTL. DATA SHOWED THE ABSENCE OF A CORRELATION BETWEEN THE SOFTENING POINT OF THE ADDNS. AND THE MECH. STRENGTH OF COKE. THE MECH. STRENGTH INCREASED WITH THE COKING RESIDUE IN THE ADDNS. INCREASING TO 50PERCENT AND REMAINED UNCHANGED AT GREATER THAN 50PERCENT COKING RESIDUE. THE OPTIMUM RESULTS WERE OBTAINED FROM ADDNS. WITH SOFTENING TEMP. 180-50EGREES AND CONTG. SIMILAR TO 50PERCENT COKING RESIDUE, 40-5PERCENT MALTHENES, 25-30PERCENT ASPHALTENES, AND 25-35PERCENT SUBSTANCES INSOL. IN C SUB6 H SUB6.

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UDC 616.981-718.078.737

USSR

MARTYNYUK, Yu. V., EMDINA, I. A., TITOV, M. B., OBOLENSKAYA, G. I., KRUKIYER, M. D., SUPRUNOVICH, M. S., ZABNINA, S. G., and MOSKAL'CHUK, Z. A., L'vov Institute of Epidemiology and Microbiology

"Specificity of the Complement Fixation Reaction in the Diagnosis of Q Fever"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 4, 1970, pp 55-59

Abstract: Study of the immunological structure of the L'vov population with respect to Q fever, using the complement fixation reaction with antigen from Rickettsia burneti, revealed the highest number of positives (18-21%) among livestock handlers, meat plant workers, etc., as compared with 10.7% in the population at large. Serological examination of 429 hospitalized patients with cardiovascular, respiratory, liver, kidney, gastrointestinal, endocrine diseases, etc., 1730 febrile patients suffering from typhoid, influenza, meningoencephalitis, and other infectious diseases, and 158 cancer patients showed that about 12% had complement-fixing antibodies to the specific Q-fever antigen, or about the same rate as in the general population. There was no increase in the level of specific complement-fixing antibodies in any of the patients with diseases

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

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MARTYNYUK, Yu. V., et al, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 4, 1970, pp 55-59

of non-Q-fever etiology. Even when the sera were stored for as long as 3-4 months (at 4°C) no nonspecific reactions were observed.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

USSR

UDC 576.895.771.095.38:576.895.132.5

FEDDER, M. L., SUPRYAGA, V. G., YAKUBOVICH, V. Ya., and MANUKHOV, A. G., Division of Epidemiology and Prophylaxis of Malaria in the USSR and of the Nosogeography of Parasitic Tropical Diseases in Foreign Countries, Institute of Medical Parasitology and of Tropical Medicine imeni Ye. I. Martsinovskiy, Ministry of Health USSR, Moscow

"Susceptibility to Wuchereria bancrofti Cobbold of Culex pipiens molestus Forskal Mosquitoes Occurring in Moscow"

Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, Vol 41, No 5, Sep-Oct 72, pp 599-601

Abstract: Culex pipiens molestus Forsk. mosquitoes from the City of Moscow were successfully infected with Wuchereria bancrofti Cobbold microfilaria by feeding them through a biological membrane (a freshly removed skin of a white mouse) with venous blood of wuchereriasis patients (one a native of East Africa and another of Vietnam) mixed with a physiological saline solution and stored at a temperature $\leq 5^{\circ}$. The W. bancrofti larvae reached the invasion stage 16-17 days after infection of the female mosquitoes, which were kept at 23-26° and a relative humidity of 60-75%.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

USSR UDC: 621.317.77

SUP'YAN, V. Ya., KHILIN, N. S., TASHCHENKO, S. P., SIMON, S. Kh.

"A High Precision Digital Phase Meter for the 5-1000 MHz Frequency Band"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 2 (Reports of the All-Union Scientific and Technical Conference on Radio Engineering Measurements. Vol. 2), Novosibirsk, 1970, pp 110-112 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A331)

Translation: In developing a phase meter, the authors utilize the principle of increasing the multiplicity of frequency conversion. The fundamental instrument range of 5-140 MHz is extended to 1000 MHz by means of an attachment consisting of a vacuum-tube frequency converter. Thanks to the use of a single conversion stage, the accuracy of measuring phase displacements in the 0-360° range is no worse than ±0.2° for equal levels of the input signals from 0.4 mV to 0.4 V. With a change in the level of the input signals by 60 DB, the dynamic amplitude-phase error is no greater than ±4°, with a corresponding figure of ±2% for changes by 40 DB. In the expanded range on a frequency of 500 MHz and on the first intermediate frequency of 50 MHz, the drift in readings is no more than ±1% per hour. It was possible to reduce amplitude-phase errors by using limiter-amplifiers on the intermediate frequency with small dynamic errors. Some data are given on these limiter amplifiers. E. L.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

USSR

UDC: 621.317.6

ZHILIN, N. S., SUP'YAN, V. Ya.

"A Method of Determining the Amplitude-Phase Characteristics of Attenuators"

Tr. Tomskogo in-ta radioelektron. i elektron. tekhn. (Works of the Tomsk Institute of Radio Electronics and Electronic Technology), 1970, 16, pp 20-23 (from RZh-Radiotekhnika, No 7, Jul 70, Abstract No 7A224)

Translation: The voltage of a self-oscillator synchronized by an external signal contains information on the phase of this external signal. To determine the amplitude-phase characteristics of an attenuator, use may be made of the principle of transferring the initial phase of the synchronizing signal to the output voltage of the oscillator, since the amplitude of this voltage under certain conditions is independent of the amplitude of the synchrosignal. This makes it possible to eliminate the amplitude-phase errors introduced by the phase measuring device. A schematic diagram is given as well as a brief theory of an installation for determining the amplitude-phase characteristics of attenuators. Bibliography of one title. E. L.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

1/2 039 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--DECAY OF A HELICON IN A SOLID -U-

AUTHOR--SURAMLISHVILI, G.I.

COUNTRY OF INFO--USSR

SOURCE--LENINGRAD, FIZ TVEV. TELA (SOLID STATE PHYSICS), FEB 1970, PP 329-32
DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--PLASMA DECAY, MATRIX ELEMENT, LAGRANGE EQUATION, PLASMA INTERACTION, LATTICE DEFECT, SOUND WAVE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/0889 STEP NO--UR/0181/70/000/000/0329/0332

CIRC ACCESSION NO--AP0126551
UNCLASSIFIED

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

USSR

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SURAMLISHVILI, G. I. (Institute of the Physics of Semiconductors, Georgian Academy of Sciences, Tbilisi)

"Decay of a Helicon in a Solid"

Leningrad, Solid State Physics; February, 1970; pp 329-32

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ABSTRACT: The decay of a helicon into a sonic wave and a low-frequency helicon is considered. A matrix element determining the decay probability is obtained by means of the Lagrangian function, taking into account the interaction of a plasma of carriers with a lattice in the proximity of a deformation potential. Typical quantities in the given decay process are determined: frequency of collision of a helicon with sound waves and the decay time.

The article includes 13 equations. There are 7 references.

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2/2 039 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0126551

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DECAY OF A HELICON INTO A SONIC WAVE AND A LOW FREQUENCY HELICON IS CONSIDERED. A MATRIX ELEMENT DETERMINING THE DECAY PROBABILITY IS OBTAINED BY MEANS OF THE LAGRANGIAN FUNCTION, TAKING INTO ACCOUNT THE INTERACTION OF PLASMA OF CARRIERS WITH A LATTICE IN THE PROXIMITY OF A DEFORMATION POTENTIAL. TYPICAL QUANTITIES IN THE GIVEN DECAY PROCESS ARE DETERMINED: FREQUENCY OF COLLISION OF A HELICON WITH SOUND WAVES AND THE DECAY TIME.

FACILITY: INSTITUTE OF THE PHYSICS OF SEMICONDUCTORS, GEORGIAN ACADEMY OF SCIENCE, TBILISI.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

USSR

UDC 681.325.63

KOTOV, B. A., SURAMANOV, R. F., Institute of Semiconductors, Academy of Sciences of the USSR, Leningrad

"An Analog-Code Converter"

Moscow, Pribory i Tekhnika Eksperimenta, No 4, Jul/Aug 71, pp 97-99

Abstract : The authors describe a voltage-to-code converter based on integrated circuits. The device can be used to convert continuous deterministic and stationary random signals to digital code with punch-tape output, which enables use of digital and control computers both for optimum processing of physical data and for controlling a complex physical experiment. The converter quantizes continuous signals by level with a precision of 0.1 percent. Maximum conversion time is 1 ms, input impedance is 20 kΩ. The converter can be used in the digital integration mode, which makes it possible to estimate the mathematical expectation of a stationary random process.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

USSR UDC: 615.45:615.783.1

CHICHIRO, V. Ye., SURANOVA, A. V., BRUTKO, L. I., DROZHZHINA, V. V., Central Pharmaceutical Scientific Research Institute

"A Method of Synthesizing the Morphine Base"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 15, May 71, Author's Certificate No 302342, Division C, filed 27 Mar 70, published 28 Apr 71, p 80

Translation: This Author's Certificate introduces a method of synthesizing the morphine base from morphine hydrochloride by portion between a phosphate buffer solution and chloroform. As a distinguishing feature of the patent, the quality of the produce is improved by using a phosphate buffer solution with pH of 6.5-7.0

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

USSR

UDC 546.161:541.183.12

KORNELLI, M. E., OLENOVICH, N. L., ENNAN, A. A., SURANOVA, Z. P., KUSHNIR, A. A., and MIKHAYLOVINA, S. K.

"Sorption of Fluoride Ion on Anionite EDE-10P in the Hydroxyl Form"

Kiev, Ukrainskiy Khimicheskiy Zhurnal, Vol 38, No 11, 1972, pp 1172-1174

Abstract: The sorption of fluorine from solutions of NaF and HF by the anionite EDE-10pi in the hydroxyl from was studied. Resin in the hydroxyl form, air dried, was loaded into a polyethylene column, and sorption was accomplished by passing solutions of NaF and HF at varying rates of filtration. The anionite was then washed, first with distilled water and then with solutions of either NaOH of KOH. The degree of charging of the ionite during sorption from acidic solutions is significantly higher than that from weakly alkaline solutions (NaF). During the washing of the resin with water there appears a quantity of fluorine which cannot completely be attributed to the hydrolysis of the resin. This is brought about by molecular sorption or desorption from the sorbed material. The first filtrate fractions during elution with alkali have an acidic reaction, which points to desorption into solution of an acidic bifluoride ion, which in the process of sorption is taken up by the resin. This is

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KORNELLI, M. E., et al., Ukrainskiy Khimicheskiy Zhurnal, Vol 38, no 11, 1972, pp 1172-1174

supported by the bimodality of the elution curve during desorption with alkali, suggesting the presence in the ionite phase of 2 types of ions(F^- and HF^-_2).

By selecting the type of eluent and its concentration in solution during desorption of the fluoride ion from EDE-10pi resin, one can obtain concentrated solutions of metal fluorides. Thus EDE-10P can be used for concentration of fluoride ions in analytical and applied chemistry.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

USSR

UDC 621.382.017.72

SURANT, I. V.

"Thermoelectric Characteristics of a System Comprised of a Semiconductor Device and Ambient Medium"

Moscow, Poluprovodnikovyye Pribory i ikh Primeneniye, No 24, Izd-vo "Sovetskoye Radio", 1970, pp 126-134

Abstract: The paper deals with the thermal and electrical characteristics of a system comprised of a semiconductor device and its ambient medium in the steady state under overall heat-transfer conditions. Defining the concept of a thermal adapter as a structure of alternating layers of metals and insulators with known resultant thermal and electrical resistance, the author formulates the requirements for such a structure to act as an insulator protecting the semiconductor device from overall heat transfer, and also as a good thermal contact. It is proved that a thermal adapter with high thermoelectric properties can be made only on the basis of a multiple-layer structure comprised of a metal and inorganic thin-film insulators. Multiple-layer structures are used as the basis for making

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SURANT, I. V., Poluprovodnikovyye Pribory i ikh Primeneniye, No 24, pp 126-134

thermal adapters with a heat-transfer resistance of 0.01°C/W at an electric strength of 1.5 kV. Curves are given for the temperature dependence of the heat-transfer resistance and electrical capacitance of the thermal adapter, and the areas where these devices can be used are defined. Three figures, two tables, bibliography of seven titles.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

USSR UDC 621.787+539.4.014.13:669.295

SIDOROV, N. F., and SURAY, P. Ya., Kuybyshev

"Development Characteristics of Residual Stresses in Titanium Alloys by Cutting and Plastic Deformation"

Kiyev, Problemy Prochnosti, No. 9, Sep 71, pp 99—102

Abstract : Experimental investigation results are presented of the effect of the phase composition and the structure of the two-phase titanium alloys VT8 and VT9 on the level of residual stresses after grinding and plastic surface deformation. It is demonstrated that on surface layers of the alloys by grinding, vibrational barrel finishing, pneumatic- and hydraulic shot--stream processing, phase transformations take place which affect considerably the level of residual stresses caused by grinding or plastic surface deformation. In surface hardening by methods of vibrational barrel finishing and hydraulic shot-stream processing, the character of the surface layer is affected, besides by known factors, also by the physico-chemical interaction with the working medium which results, e.g., in a hydrogenation of the hardened surface. Five illustr., six biblio. refs.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

1/2 018 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--WIND MEASURING INSTRUMENTS. CERTAIN INVESTIGATIONS -U-

AUTHOR-(02)-TOROCHKOV, V.YU., SURAZHSKIY, O.YA.

COUNTRY OF INFO--USSR

SOURCE--WIND-MEASURING INSTRUMENTS. CERTAIN INVESTIGATIONS (VETROIZMERITEL'NYYE PRIBORY. NEKOTORYYE ISSLEDOVANIYA) LENINGRAD,
DATE PUBLISHED--------70

SUBJECT AREAS--ATMOSPHERIC SCIENCES

TOPIC TAGS--METEOROLOGIC INSTRUMENT, WIND MEASUREMENT, WIND DIRECTION, WIND VELOCITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605011/D11 STEP NO--UR/0000/70/000/000/0001/0104

CIRC ACCESSION NO--AM0140208

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

2/2 018 UNCLASSIFIED PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AM0140208
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TABLE OF CONTENTS: PREFACE 3. FROM AUTHORS 5. CHAPTER I MEASUREMENT OF WIND CHARACTERISTICS 7. II INSTRUMENTS AND METHODS FOR WIND MEASUREMENTS 35. III EXPERIMENTAL INVESTIGATIONS 68. APPENDIX. PRINCIPLES OF THE THEORY OF STABILITY 85. BIBLIOGRAPHY 103. ANALYZED ARE METHODOLOGICAL PROBLEMS IN MEASUREMNT OF VELOCITY AND DIRECTION OF WIND, AS WELL AS INSTRUMENTS FOR MEASUREMENT OF THESE PARAMETERS. THE BOOK WAS SRITTEN FOR ENGINEERING TECHNICAL PERSONNEL, PROFESSORS, POST GRADUATE AND COLLEGE STUDENTS OF HYDROMETEOROLOGICAL INSTITUTES.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

Acc. Nr: AP0038045 Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1970, Vol 58, Nr 1, pp 245-252

QUANTUM MODEL OF A LASER WITH NONLINEAR ABSORPTION

A. P. Kazantsev, G. I. Surdutovich

Amplitude and phase shift fluctuations in a laser with nonlinear absorption due to spontaneous radiation emission are considered. The noise intensity in such a laser is much greater than that in an ordinary one. Near the hysteresis threshold the fluctuations may lead to instability of generation. The statistical description of the laser radiation in the hysteresis region is equivalent to the picture of a liquid — gas transition near the critical point.

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USSR
Adsorption

USSR UDC 541.183

BERING, B. P., SERPENSHIY, V. V., and SUREKOVA, S. I., Institute of Physical Chemistry, Academy of Sciences USSR

"Calculation of the Isotherm of Adsorption from a Solution onto a Non-porous Substrate Using the Individual Isotherm of Adsorption of the Components From a Gas Phase"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 1, Jan 73, pp 3-6

Abstract: A solution is proposed for the title problem for the particular case of a binary solution and a nonporous or very large pore substrate. The solution is based on the Gibbs free energy equation together with the individual adsorption isotherms of the components from the gas phase and a diagram for the solution volume. Calculations were checked against experimental results of the adsorption of vapors in the system {benzene - Isooctane} at a temperature of 45° onto graphitized carbon black having a surface area of 85 m^2/g. Measurements were made not only of the monomolecular adsorption but also of the polymolecular adsorption and capillary condensation. Analogous results were obtained using the {CCl_4 - 2,2,4-trimethylpnetane} and the {C_2H_5OH-C_6H_6} systems.

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USSR UDC: 519.21

SURGALIS, D.

"On Stochastic Equations of Filtration of Markov Processes"

Lit. mat. sb. (Lithuanian Mathematics Collection), 1970, 10, No 3, pp 565-581 (from RZh-Kibernetika, No 7, Jul 71, Abstract No 7V146)

Translation: A system of stochastic equations is derived for finding the a posteriori probabilities of "unobserved" components θ_t of a two-dimensional Markov process (θ_t, η_t), when θ_t takes on a finite number of values, while η_t is a process, continuous from the right, which satisfies K. Ito's equation. This result is a consequence of decomposition of the mathematical expectation $E\{f(\theta_t)|\eta_s\}$ for some class of continuous functions $f(\theta)$ when θ_t is a more general stochastic continuous process. Author's abstract.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

Acc. Nr: AP0044680 Ref. Code: UR0531

PRIMARY SOURCE: Khirurgiya, 1970, Nr 1, pp 32-37

THE EMPLOYMENT OF RHEOGRAPHY FOR THE DIFFERENTIAL DIAGNOSIS OF VASCULAR LESIONS OF THE LOWER EXTREMITIES

Demetskiy, A. M.; Gurganova, S. F.

Under study was the suitability of rheography for the differential diagnosis of traumatic injuries and diseases of major arteries and veins of the lower extremities. Longitudinal rheography was used in obliterating endarteritis, atherosclerotic endarteritis, thrombophlebitis of deep veins and varicose dilatation of superficial veins, as well as in experiments on dogs in ligation of femoral arteries, femoral veins and venae saphena magna. Rheographic data were compared with the results of tensiometry and intravital roentgenovasography. The referred to investigations demonstrate that rheography reflects the degree of blood filling and elastic properties of vessels of the extremity. By the nature of changes of rheographic components one could assess the prevalent affection of arteries or veins.

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USSR

SURGAYLIS, D.

"Certain Properties of the Optimal Cost in the Generalized Problem of Two Types of Weapons"

Lit. Mat. Sb. [Lithuanian Mathematics Collection], 1972, Vol 12, No 3, pp 181-184 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V493, by the author).

Translation: Suppose $X^A(X^B)$ represents the result of experiment A(B). $X^A(X^B)$ takes on values of 1 (success) with probability a(b) and 0 (failure) with probability 1 - a(1 - b), the values of a and b themselves being unknown to the experimenter, who knows only their joint probability distribution $\mu(da \times x\ db)$. According to a certain rule δ, each time one experiment (A or B) is selected, and $R_N(\delta)$ represents the mathematical expectation of the number of successes in N tests, while $R_N = \max R_N(\delta)$. This article proves two properties of the quantity R_N^δ, concerning its behavior with certain transforms of the a priori measure μ (on the assumption that a and b are independent).

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USSR

SURGAYLIS, D.

"The 'Innovation Theorem'"

Lit. mat. sb. [Lithuanian Mathematics Collection], 1973, 13, No 1, pp 221-226 (Translated from Referativnyy Zhurnal - Kibernetika, No 8, 1973, Abstract No 8 V39 by the author)

Translation: The process $X= X(t),F_t$, is studied, where

$$X(t)-\int_0^t \bar{a}(u)du+W(t),$$

$W=\{W(t),F_t\}$ is Wienerian process, $a(t)$ is matched to a system of increasing

σ algebras $F_t,t \in [0,1]$ and $\int_0^1 |a(t)|dt<\infty$ almost everywhere. Suppose μ_X and μ_W are measures in $C[0,1]$, corresponding to processes X and W. It is proven that the conditions $\mu_X \ll \mu_W$ or $a(t)\geq 0 (a(t)\leq 0)$ are sufficient for

existence of the function $\bar{a}(t),F_t^X=\sigma\{X(u),u\leq t)$, measured for each t, such

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

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SURGAYLIS, D., Lit. mat. sb., 1973, 13, No 1, pp 221-226

that the process

$$\overline{W}= \overline{W}(t)=X(t)-\int_0^t \overline{a}(u)du, F_t^X$$

is Wienerian.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

USSR

UDC: 519.217

SURGAYLIS, D.

"On Random Processes as Solutions of K. Ito's Stochastic Equation"

Lit. mat. sb. (Lithuanian Mathematics Collection), 1971, 11, No 1, pp 189-197 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V103)

Translation: B. Grigelionis (RZhMat, 1969, 12V61), making certain assumptions, decomposed an m-dimensional process continuous from the right into a continuous and a stepwise part. In the case of an x-independent measure $\Pi(t,x,\Gamma) = \Pi(t,\Gamma)$ of the steps of the process, the decomposition can be treated as K. Ito's stochastic equation. It is proved that such a possibility exists for the case of an x-dependent measure $\Pi(x,t,\Gamma)$ as well; namely on the assumption that the basic ω-space is sufficiently "rich", the stepwise part of the process may be defined as a stochastic integral with respect to some Poisson measure. Author's abstract.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

USSR

SURGAYLIS, D. G.

"One Limit for Convex Monotonic Functions in M[0, 1]"

Lit. Mat. Sb. [Lithuanian Mathematics Collection], 1972, Vol 12, No 4, pp 219-224 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V70, by the author).

Translation: Let M[0, 1] be the set of all probability measures in [0, 1] with the relationship of partial ordering $m_1 \leq m_2 \leftrightarrow ([t, 1]) \leq m_2([t, 1])$ for all $0 \leq t \leq 1$ and Φ be the set of all monotonic and convex functions F in M[0, 1]. This work produced necessary and sufficient conditions (on function F and sequence $g_1, g_2, \ldots$) such that the limit

$$\lim_{n\to\infty} \mathcal{T}_{g_1}\mathcal{T}_{g_2}\cdots\mathcal{T}_{g_n}F$$

is a linear function, where $\mathcal{T}_g:\Phi\to\Phi$ is a certain set of linear operators defined for monotonic functions $g = g(t)$, $0 \leq t \leq 1$, such that $0 < g < 1$.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

1/2 039 UNCLASSIFIED PROCESSING DATE--09OCT70

TITLE--STATISTICAL ANALYSIS OF THE DECARBURIZATION DYNAMICS OF A MOLTEN METAL -U-

AUTHOR-(05)-KAGANOV, V.YU., SURGUCHEV, G.D., DERKACHEV, YE.N., MOSALOV, G.I., TITOV, V.I.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., CHERN MET. 1970, 13(1), 167-71

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--DECARBURIZATION, LIQUID METAL, STATISTIC ANALYSIS, OXYGEN, CARBON, FLUID DYNAMICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1981/0594 STEP NO--UR/0148/70/013/001/0167/0171

CIRC ACCESSION NO--AT0050601

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

2/2 039 UNCLASSIFIED PROCESSING DATE--090CT70

CIRC ACCESSION NO--AT0050601

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. REMOVAL OF C FROM A LIQ. METAL IS A COMPLEX PROCESS, NOT ALWAYS SUSCEPTIBLE TO RECOGNIZED FORMS OF ANAL. RESULTS ARE GIVEN OF STATISTICAL ANAL. OF RANDOM FUNCTIONS DETG. THE DYNAMICS OF DECARBURIZATION OF FUSED METAL BY THE INTRODUCTION OF O. THE CONNECTION BETWEEN AMT. OF O ADDN. AND RATE OF DECARBURIZATION (U(T)-V(T)) IS DETD., THOUGH THIS IS DIFFICULT IN VIEW OF THE MULTIPLE PROBABILITY SURFACES OF THE RANDOM FUNCTIONS, AND HENCE, ONLY THE SIMPLEST APPROXNS. CAN BE EXAMD. CURVES ARE GIVEN TO COMPARE THE MATH. EXPECTATION AND MEAN SQUARE DEVIATIONS OF EXPTL. MELTS WITH RESULTS ACTUALLY OBTAINED. THE C CONTENT EXERCISES ONLY A SMALL EFFECT ON THE MATH. EXPECTATION OF V(T). DECARBURIZATION IS A NONSTATIONARY EFFECT FOR STEEL MELTS, OWING TO A COMBINATION OF INTERNAL COMPN. FACTORS.

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

Acc. Nr: AP0038687 Ref. Code: UR 0326

PRIMARY SOURCE: Fiziologiya Rasteniy, 1970, Vol 17, Nr 1, pp 49-53

PHYSIOLOGICAL ACTIVITY OF PHENOLIC COMPOUNDS EXTRACTED FROM APPLES

Surgucheva, M. P.; Smirnova, G. G.; Zaprometov, M. N.

Scientific Research Horticulture Institute of Nonchernozem Region, Moscow, and K. A. Timiriazev Institute of Plant Physiology, USSR Academy of Sciences, Moscow

The growth activity of (—) epicatechin, dimer of (—) epicatechin and leucocyanidin and also of quercitrin as the chief components of the phenolic complex isolated from green apples (Pepin Shafranny variety) was tested. Besides wheat coleoptiles, which are the classical object for physiological activity tests, sprouts of isolated embryos from stratified apple seeds were used. This permits one to study the effect of phenolic compounds on hypocotyl growth and root formation. The growth stimulation activity of apple phenolic compounds is not the same. Stimulation of growht of wheat coleoptiles by equimolar solutions of phenolic compounds did not exceed 38% over that in the control. One of the most oxidized flavonoids, flavonol quercitrin, stimulated growth of wheat coleoptiles to a greater extent than growth of apple shoots. The effect of phenolic compounds on growth of tissues of apple sprouts was greater, the stimulation exceeding 70%.

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REEL/FRAME 19731875

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

AP0038687

Representatives of the most reduced flavonoid groups — (—) epicatechin and dimer of (—) epicatechin and leucocyanidin exhibited the highest activity. The problem of participation of phenolic compounds in regulation of growth processes is discussed.

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19731876

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

1/2 016 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--EFFECT OF PREPARATIONS OF MYCOBACTERIA AND DIAMINOPIMELIC ACID ON THE GROWTH OF CANDIDA TROPICALIS -U-
AUTHOR-(03)-SURGUCHEVA, N.A., KROSHIN, V.K., SAMOYLOV, P.M.

COUNTRY OF INFO--USSR

SOURCE--PRIKL. BIOKHIM. MIKROBIOL. 1970, 6(1), 79-82

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--MYCOBACTERIUM, YEAST, CONTINUOUS CULTURE, CULTURE MEDIUM, VITAMIN, ORGANIC ACID, AMINO ACID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/0610 STEP NO--UR/0411/70/006/001/0079/0082

CIRC ACCESSION NO--AP0117838
UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

2/2 016 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0117838

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF THE CULTURE LIQ., EXT., AND HYDROLYZATE OF CULTURES MYCOBACTERIUM SMEGMATIS 77 AND M. RUBRUM 100 ON THE GROWTH OF THE BIOTIN DEFICIENT YEAST C. TROPICALIS IVFM-303, GROWING ON SYNTHETIC MEDIA WITH GLUCOSE OR PARAFFINS WAS INVESTIGATED. THE MYCOBACTERIAL PREPNS. COULD SUBSTITUTED FOR BIOTIN, WHEN ADDED AT 5 VOL. PERCENT IF THE YEASTS ARE CULTURED IN HEXADECANE OR GLUCOSE MEDIA. WITH CULTIVATION ON PARAFFINS C. TROPICALIS GREW WITHOUT BIOTIN. THE STIMULATING EFFECT OF THE MYCOBACTERIAL HYDROLYZATE WAS MUCH GREATER WITH THE ADDN. OF BIOTIN (10PERCENT OF THE OPTIMAL DOSE). 1,5,DIAMINOPIMELIC ACID (DAPA) WAS CAPABLE OF COMPLETE SUBSTITUTION FOR BIOTIN WHEN YEASTS WERE CULTIVATED IN HEXADECANE CONTG. MEDIUM. IN PARAFFIN CONTG. MEDIA GOOD GROWTH WAS FOUND EVEN IN ABSENCE OF DAPA, BUT IN GLUCOSE CONTG. MEDIA C. TROPICALIS DID NOT GROW WITH DAPA. DAPA CAN REPLACE 90PERCENT OF THE BIOTIN REQUIRED FOR C. TROPICALI 303 GROWING ON A GLUCOSE MEDIUM. FACILITY: INST. BIOCHEM. PHYSIOL. MICROORG., MOSCOW, USSR.

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

USSR

UDC 621.374.531

SURGULADZE, D. K.

"A High-Stability Square Pulse Generator"

Tr. In-ta elektron., avtomatiki i telemekh. AN GruzSSR (Works of the Institute of Electronics, Automation and Remote Control, Academy of Sciences of the Georgian SSR), 1970, 8, No 2, pp 40-45 (from RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10G166)

Translation: The author describes a generator which produces on two separate outputs voltage pulses with a prf of 1 MHz, time-shifted by 0.5 μsec. The oscillator circuit consists of two self-contained units -- a self-oscillator and a shaper--amplifier. The quartz-controlled self-oscillator is based on a circuit with capacitive feedback and parallel supply. The shaper-amplifier is made in the form of a two-stage transistorized circuit with nonlinear negative feedback in the emitter circuits of both transistors to prevent saturation. Short bipolar pulses are shaped by means of a pulse flip-flop in the second stage. Bibliography of three titles.

N. S.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

172 031 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--EFFECTIVE CROSS SECTIONS OF INELASTIC PROTON INTERACTION WITH CARBON AND HYDROGEN NUCLEI IN THE 20-600 GEV REGION MEASURED AT THE

AUTHOR-(05)-SAVENKO, I.A., GRIGOROV, N.L., NESTEROV, V.YE., RAPOPORT, I.D., SURIDIN, G.A.

COUNTRY OF INFO--USSR

SOURCE--YAD. FIZ. 1970, 11(4), 814-29

DATE PUBLISHED--------70

SUBJECT AREAS--SPACE TECHNOLOGY, PHYSICS

TOPIC TAGS--PROTON INTERACTION, CARBON, HYDROGEN, NUCLEUS, INELASTIC INTERACTION/(U)PROTON 3 SCIENTIFIC SATELLITE, (U)PROTON 2 UNMANNED LABORATORY, (U)PROTON 1 UNMANNED LABORATORY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/1078 STEP NO--UR/0367/70/011/004/0814/0829

CIRC ACCESSION NO--AP0136498

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

2/2 031 UNCLASSIFIED

CIRC ACCESSION NO--AP0136498 PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CROSS SECTIONS SIGMA SUBPC AND SIGMA SUBPP AT THE EFFECTIVE P ENERGIES 20-600 GEV WERE MEASURED BY USING EHA APP. PLACED ON THE SPACE STATIONS (ORBITING SATELLITES) PROTON MINUS 1, MINUS 2, AND MINUS 3. WITH THE RISE OF THE RHO ENERGY THE CROSS SECTION SIGMA SUBPC INCREASED BY (20 PLUS OR MINUS 5)PERCENT. THE CROSS SECTION SIGMA SUBPP WAS DETD. BY THE DIFFERENCE METHOD (POLYETHYLENE-C) WITH ERRORS 8-20PERCENT. THE MEASURED DEPENDENCE OF SIGMA SUBPP ON THE ENERGY DOES NOT CONTRADICT THE OBSD. INCREASE OF THE CROSS SECTION SIGMA SUBPC IN THE SAME ENERGY RANGE. VARIOUS METHODIC EFFECTS AND TRIVIAL PHYS. PROCESSES WHICH COULD AFFECT THE VALUES OF MEASURED CROSS SECTIONS WERE ANALYZED. THE OBSD. INCREASE OF THE CROSS SECTIONS CANNOT BE EXPLAINED BY THESE EFFECTS. FACILITY: INST. YAD. FIZ., MOSK. GOS. UNIV., MOSCOW, USSR.

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

USSR

UDC 534.25

KANEVSKIY, I. N., SURIKOV, B. S., State Scientific Research and Planning Institute of the Rare-Metal Industry, Moscow

"Concerning a Variant of the Luneberg Acoustic Lens"

Moscow, Akusticheskiy Zhurnal, Vol 16, No 4, 1970, pp 536-541

Abstract: The article deals with a variant of the Luneberg acoustic lens, of spherical or cylindrical shape, consisting of two layers with constant indices of refraction. A study is made of the phase aberration in the lens aperture, and by means of the criterion of mean-square phase aberration are found the optimum values of the index of refraction and of the internal-layer radius as a function of the index of refraction of the external layer. An evaluation is made of the maximum attainable ratio of the diameter of the spherical and the cylindrical lens to the wavelength in the medium. 5 figures, 8 bibliographic entries.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

USSR

UDC: 621.397:621.396.61

DALINENKO, N. K., YEFREMOV, V. A., DEMINA, N. F., KRUPCHATNIKOV, V. A., SURIKOV, I. N.

"A Method of Objective Measurement of the Noises and Signal From Fine Details of Images of the Dissectors in the Small-Frame Scanning Mode"

Elektron. tekhnika. Nauch.-tekhn. sb. Elektronnoluch. i fotoelektr. pribory (Electronic Technology. Scientific and Technical Collection. Electron-Beam and Photoelectric Devices), 1970, vyp. 4(18), pp 40-46 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5G113)

Translation: The authors discuss an objective method of measuring the signal-to-noise ratio and depth of modulation of the signals of fine details in an image in cameras with dissectors in the small-frame scanning mode. The characteristics of the equipment developed are presented together with the results of measurements made by the proposed method. Resumé.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

1/2 037 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--GUANOSINE NUCLEOTIDES IN THE BRAIN DURING NEUTRON IRRADIATION -U-

AUTHOR-(03)-FOMICHENKO, K.V., GAMEZO, N.V., SURIKOV, P.M.

COUNTRY OF INFO--USSR

SOURCE--VESTSI AKAD. NAVUK BELARUS. SSR, SER. BIYAL. NAVUK 1970, (1), 85-90

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLUGICAL AND MEDICAL SCIENCES

TOPIC TAGS--NEUTRON IRRADIATION, RADIATION BIOLOGIC EFFECT, BRAIN, NUCLEOTIDE, ELECTROPHORESIS, THIN LAYER CHROMATOGRAPHY, RADIATION DOSAGE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0509 STEP NO--UR/0440/70/000/001/0085/0090

CIRC ACCESSION NO--AP0121183

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

2/2 037 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0121183

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. USING HIGH VOLTAGE ELECTROPHORESIS AND THIN LAYER CHROMATOG., IT WAS FOUND THAT RAT BRAIN CONTENT OF GMP AND GDP DID NOT CHANGE 4 AND 12 HR AFTER IRRADN. WITH MEDIUM ENERGY NEUTRONS (13.5 RAD) BEING SLIGHTLY HIGHER (GMP) OR LOWER (GDP) THAN IN CONTROLS 8 HR AFTER IRRADN. THE GTP CONTENT WAS SIGNIFICANTLY LOWERED 8 HR AFTER IRRADN., SLIGHTLY AFTER 12 HR, AND UNCHANGED AFTER 4 HR. AT THE TIME OF HIGHEST EFFECT (8 HR) THE TOTAL CONTENT OF GUANOSINE PHOSPHATES WAS LOWER BY 29.1PERCENT THAN IN CONTROL ANIMALS.

FACILITY: INST. FIZIOL., MINSK, USSR.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

1/2 026 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--PROPAGATION OF MAGNETOELASTIC WAVES IN A HOMOGENEOUS MAGNETIC FIELD -U-

AUTHOR-(03)-GUREVICH, A.G., STAROBINETS, S.S., SURIKOV, V.I.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(3), 951-3

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS, EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--HOMOGENEOUS MAGNETIC FIELD, MAGNETOSTRICTION, SINGLE CRYSTAL PROPERTY, GARNET, CRYSTAL ORIENTATION, PHASE SHIFT, MAGNETIC POLARIZATION, MAGNETIC SUSCEPTIBILITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/1981 STEP NO--UR/0181/70/012/003/0951/0953

CIRC ACCESSION NO--AP0105055

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

2/2 026 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0105055

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RESULTS ARE GIVEN OF THE INVESTIGATION OF MAGNETOELASTIC WAVES IN A HOMOGENEOUS INTERNAL FIELD, PARALLEL TO THE (110) AZIS OF SINGLE CRYSTAL Y GARNET. ALONG THE CUBIC (110) AXIS, 2 TRANSVERSE ELASTIC NORMAL WAVES CAN PROPAGATE, POLARIZED IN THE DIRECTIONS (001) AND (110), RESP. A LINEARLY POLARIZED ELASTIC WAVE WAS EXCITED AND DETECTED WITH THE AID OF AN AC CUT QUARTZ PLATE ATTACHED TO 1 OF THE SURFACES OF THE SPECIMEN. THE DEPENDENCE IS GIVEN OF THE AMPLITUDE OF MAGNETOELASTIC IMPULSES ON THE EXTERNAL MAGNETIC FIELD. THE DISTANCE BETWEEN THE MAX. AND MIN. CORRESPONDS TO THE PHASE SHIFT BETWEEN THE WAVES, DELTA PHI EQUALS PI, WHICH IS EQUIV. TO THE ROTATION OF POLARIZATION OF THE TOTAL WAVE BY 90DEGREES ON PASSAGE THROUGH AND OUT OF THE CRYSTAL. A SHARP INCREASE IN THE VELOCITY OR ROTATION OF POLARIZATION IS OBSD. AS THE REGION OF FERROACOUSTIC RESONANCE IS APPROACHED WHEN THE FREQUENCY OF EXCITING ELASTIC WAVES COINCIDES WITH THE FREQUENCY OF MAGNETIC WAVES. FROM THE EXPTL. DATA, THE DEPENDENCE OF THE PHASE SHIFT ON THE MAGNETIC SUSCEPTIBILITY (CHI) WAS OBTAINED. WITH INCREASED CHI, A DEVIATION IS OBSD. FROM A LINEAR DEPENDENCE. FACILITY: INST. POLUPROV., LENINGRAD, USSR.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

1/2 021 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--POSSIBILITY OF ORDERED INTERMETALLIDE V SUB3 AL FORMATION -U-

AUTHOR--SHTOLTS, A.K., ZAGRYAZHSKIY, V.L., GELD, P.V., SURIKOV, V.I.

COUNTRY OF INFO--USSR

SOURCE--UKR. FIZ. ZH. (RUSS. ED.) 1970, 15(1), 118-19

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--ORDERED ALLOY, VANADIUM ALLOY, CRYSTAL STRUCTURE, ALUMINUM CONTAINING ALLOY, X RAY DIFFRACTION ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/1343 STEP NO--UR/0185/70/015/001/0118/0119

CIRC ACCESSION NO--AP0107816

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

2/2 021 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0107816

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ALLOY V SUB3 AL WAS PREPD. BY MELTING THE METALS (25 AT. PERCENT V) IN PRESENCE OF AT. THE INGOT WAS ANNEALED AT 1000DEGREES FOR 80 OR 180 HR. X RAY POWDER PHOTOGRAPH REVEALED DISORDERED AL SOLID SOLN. IN V AND STRONGLY DIFFUSED LINES WHICH COULD BE DUE TO A CUBIC LATTICE OF TYPE CR SUB3 SI, A EQUALS 4.81 ANGSTROMS.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

1/2 027 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--COPOLYMERIZATION OF STYRENE WITH DIKETENE -U-

AUTHOR-(04)-FRUNZE, T.N., SUPIKOVA, M.A., KURASHEV, V.V., KONAROVA, L.I.

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN., SER. A 1970, 12(2) 460-6

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--COPOLYMERIZATION, STYRENE, KETONE, BENZOYL PEROXIDE, NITRILE, IR SPECTRUM, HETEROCYCLIC OXYGEN COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/0325 STEP NO--UR/0459/70/012/002/0460/0466

CIRC ACCESSION NO--AP0111519

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

2/2 027 UNCLASSIFIED

CIRC ACCESSION NO--AP0111519 PROCESSING DATE--02OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STYRENE (I) WAS POLYMD WITH DIKETENE (II) IN THE PRESENCE OF BZ SUB2 O SUB2 OR AZOBISISOBUTYRONITRILE. IR SPECTROSCOPY OF THE COPOLYMERS, PRODUCED IN YIELDS OF SMALLER THAN OR EQUAL TO 29PERCENT, SHOWED THAT UNITS OF STRUCTURE -CH SUB2 CHPH-, -CME:CHCO SUB2-, -C(:CH SUB2)CH SUB2 CO SUB2-, AND III ARE PRESENT. THE REACTIVITY RATIOS R SUB1 FOR I AND R SUB2 FOR II ARE 100 AND 0.008, RESP.

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

USSR

UDC 51:621.391

ANIKEICH, A. A., GRIBOV, A. B. and SURIN, S. S.

"A Three-Stage Approach in Developing an Economic-Mathematical Model of a Transport Process on a Computer"

V sb. Issled. operatisy i stat. modelir (Operations Research and Statistical Modeling--collection of works), First Edition, Leningrad, Leningrad University, 1972, pp 10 - 33 (from RZh Matematika, No 11, Nov 73, abstract No 11 V 710)

Translation: One of the current problems in automotive transport is ensuring the optimal shift and daily planning of transportation. The model described in this article was published in works previously abstracted (RZh Mat 1966, 11 V254; 1970, 3 V449). This is a complex problem of finding the optimum (including the constraint that several variables be integral). The authors believe that the computer solution of problems of this volume and complexity should be approached with the application of a combination of various methods. It is useful in the first stage to consider a problem which is similar to the initial problem, solving it by any efficient approximation method which will yield an acceptable plan for the initial problem. Then, in the second stage, the initial problem is solved by an approximation method, using the results obtained in the first stage. Finally, in the third stage, approximate solutions obtained in the preceding stages are made more exact until the optimum is reached. The accomplishment of this

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

USSR

ANIKEICH, A. A., et al., V sb. Issled. operatisy i stat. modelir, 1972, pp 10-33

concept for the problem of ensuring optimal shift-daily load planning is further explained. An approximation method is developed. Experience in solving this problem shows that in the overwhelming majority of cases the value of the functional for integral plans was 0.5-3% greater than the functional for non-integral plans. The results of the solution of a practical problem are given. A program is written in ALGOL-60 for the first stage of problem solution.

Abstract by Yu. Finkel'shteyn.

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

USSR

SURIN, S. S.

UDC 51:621.391

"A Method of Sequentially Improving the Possible Plan and Task of Linear Programming with a Large Number of Constraints"

V sb. Issled. operatsiy i stat. modelir. (Operations Research and Statistical Modeling--collection of works), First Edition, Leningrad, Leningrad University, 1972, pp 173 - 180 (from RZh Matematika, No 11, Nov 73 11 V615)

Translation: It is noted that in the solution of a linear programming problem with sparse constraint matrices it is useful to extract from the basic matrix a triangular submatrix by permutation of the rows and columns. Two algorithms are given for this, possibly non-optimal, extraction. It is noted that these algorithms can be used in two designs of the simplex method: 1) at each iteration of the inverse matrix algorithm; 2) when the multiplicative algorithm is repeated. The first plan was used in a computer experiment on an M-20 computer. Several problems with dimensions from 45 x 110 to 175 x 650 were computed, with the columns of the constraint matrix containing no more than four non-zero coefficients. The order of the non-triangular submatrix which determines the dimension of the working inverse matrix did not exceed 15, and in the 144 x 460 problem it did not exceed 4. One iteration required from 10 to 50 seconds; not more than 50% of the time was spent in the extraction of the triangular submatrix.

Abstract by S. Lebedev.

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

USSR

UDC 620.171.3

KALACHEV, M. I., SURIN, V. M., Physicotechnical Institute of the Academy of Sciences BSSR

"Effect of Temperature-Rate Conditions on the Deformation Resistance of Austenitic Steels"

Minsk, Doklady Akademii nauk BSSR, No. 3, Mar 71, pp 222-224

Abstract: Analysis of the effect of temperature-rate conditions of deformation of two austenite steels on the change in their mechanical properties indicated the presence of temperature zones of phase transformations and of breakdown under plastic flow. It is observed that austenitic steels are unstable as to structure and this instability may appear externally in the characteristic change in the mechanical properties of the metal in certain temperature intervals of deformation; the rate of deformation also causes an anomalous change in the resistance to flow of the metal if plastic deformation is accompanied by certain structural transformations or breakdown. These characteristics of the change in the mechanical properties of the metal were studied in two steels of the austenitic class Kh18N10T and Kh23N18 that are widely used in industry. The tests were made by

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

KALACHEV, N. I., SORIN, V. M., Doklady Akademii nauk SSSR, No. 3, Mar 71, pp 222-224

linear stretching and compression of cylindrical samples initially subjected to heat treatment (heating up to 1080°C and quenching in water). A wide temperature interval of deformation from -196 to 800°C was used with a deformation rate for each temperature of the test varying from $5 \cdot 10^{-3}$ min^{-1} to 2.0 min^{-1}. The octahedral shifting stress of the two steels is graphed as a function of temperature under stretching and under compression. A characteristic feature of deformation of these steels is the strong growth of resistance to flow in the low temperature zone and the presence of a maximum in the temperature curves for octahedral stress in the interval 250-550°C. These characteristic temperature intervals are distinguished by the fact that the ordinary rate characteristic for the change in true deformation resistance breaks down. The increased deformation rates do not cause an increase in the octahedral shifting stress but, on the contrary, lead to a considerable drop in it. The growth in deformation resistance with a decrease in the flow rate is explained by more complete phase transformations occurring in the metal. The true deformation resistance increases with an increase in the rate of plastic flow in temperature regions in which phase changes do not occur or their intensity is lowered to a considerable degree, and the degree of rise of defects and distortions in the crystal lattice plays a basic role in deformation strengthening of the metal. This characteristic appears to the greatest degree at temperatures above 600°C when the metal begins to take on the properties of a viscous-plastic body.

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

1/2 021 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--OBSERVATION OF THE INSTABILITY OF NONLINEAR FERROMAGNETIC RESONANCE DURING THE ARBITRARY POLARIZATION OF A PUMPING FIELD -U-

AUTHOR-(02)-SURIN, V.V., SHCHEGLOV, V.I.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(3), 953-4

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--MAGNETIC PUMPING, FERROMAGNETIC RESONANCE, NONLINEAR EFFECT, MAGNETIC FIELD CONFIGURATION, EXCITATION ENERGY, MAGNETIC POLARIZATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/1982 STEP NO--UR/0181/70/012/003/0953/0954

CIRC ACCESSION NO--AP0105056

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

2/2 021 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0105056

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DEPENDENCE OF THE THRESHOLD OF EXCITATION OF INSTABILITY (AUTOMODULATION) OF THE NONLINEAR FERROMAGNETIC RESONANCE ON THE ANGLE, PHI, BETWEEN THE DIRECTIONS OF THE SUBMAGNETIZING FIELD AND THE PUMPING FIELD WERE DETD. WITH A 9300 MHZ RESONATOR. A SPHERICAL SPECIMEN 1.6 MM IN DIAM. WAS USED. THREE VALUES OF THE SUBMAGNETIZING FIELD WERE USED; H SUB1 EQUALS 1.8, H SUB2 EQUALS 1.9, AND H SUB3 EQUALS 2KOE. AT SOME VALUES OF PHI, THE THRESHOLD OF AUTOMODULATION HAS A MAX., WHILE THE CURVES OF THRESHOLD OF EXCITATION DO NOT HAVE IT. WITH INCREASED SUBMAGNETIZING FIELD, THE POSITION OF THE MAX. OF THE THRESHOLD OF AUTOMODULATION IS SHIFTED TOWARD LOWER VALUES OF PHI. FACILITY: INST. RADIOTEKH. ELEKTRON., MOSCOW, USSR.

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

SURINOV, Yu. A.

DEPARTMENT OF THE ARMY
U.S. ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER
220 SEVENTH STREET NE.
CHARLOTTESVILLE, VIRGINIA 22901

In Reply Refer to:
FSTC-HT-23-2285-72
FSTC Task No. T72-5101

6 February 1973

TRANSLATION

ENGLISH TITLE: DEVELOPING METHODS OF TRANSFERRING HEAT BY RADIATION AND THERMAL CONDUCTIVITY IN AN ABSORBING AND DISPERSING ENVIRONMENT

FOREIGN TITLE: K RAZVITIYU METODOV TEORII PERENOSA TEPLA IZLUCHENIEM I TEPLOPROVODNOSTYU V POGLOSHCHAYUSHCHIKH I RASSEIVAYUSHCHIKH SREDE

AUTHOR: SURINOV, Yu. A. LANGUAGE: RUSSIAN

SOURCE: IZVESTIYA AKADEMII NAUK USSR, ENERGETIKA I TRANSPORT #1, 1971, pp. 134-51

TRANSLATION: UNIVERSAL LANGUAGE SERVICES INC.

REQUESTOR: SSTA

Approved for public release; distribution unlimited

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

USSR

UDC[537.226+537.311.33]:[535+535]

PETRUCHUK, I. I., and SURIN, Yu. V.

"Memory Effect in Metal-Silicon Nitride-Gallium Arsenide System"

Elektron. tekhnika. Nauch.-tekhn. sb. Mikroelektronika (Electronic Engineering. Collection of Scientific and Technical Works on Microelectronics), 1971, vyp. 3(29), pp 88-91 (from RZh-Fizika, No 1, Jan 72, Abstract No 1YE1411 by authors)

Translation: The authors studied the effects of surface-potential instability leading to lasting hysteresis in the Al-Si_3N_4-GaAsn$^-$-GaAsn$^+$-In structure. It is shown that the memory effect caused by lasting hysteresis in the Si_3N_4-GaAs system is similar to the memory mechanism in the Si_3N_4-Si system and is determined by the space charge accumulation and resorption at trapping levels in silicon nitride near the Si_3N_4-GaAs interface.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

USSR S

UDC 621.382.8

SURIN, YU. V., MATVEYEV, V. V.

"Microminiature Radio Frequency Signal Mixer Using the Hall Element"

Elektron. tekhnika. Nauchno-tekhn. sb.(Electronic Engineering. Scientific and Technical Collection), 1970, ser. 6, vyp. 1 (22), pp 29-35 (from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9D20)

Translation: This article contains a discussion of the results of investigations of a miniature frequency converter executed in the form of a flat spiral coil with a Hall element located near its center. This design permitted a reduction in size of the converter and manufacture of it in the form of a flat structure with conversion losses $\leq$ 52 decibels and conversion frequencies up to 13 megahertz. Comparison of the miniature converter with the volumetric converter also using a Hall element is made.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

Acc. Nr: AP0041843 Abstracting Service: CHEMICAL ABST. 4-70 Ref. Code: UR 0502

86838a **Comparison of the histochemical reaction of the adrenal cortex of rats in response to the administration of ACTH, STH, and sex hormones.** Surina, M. N. (Inst. Morfol. Cheloveka, Moscow, USSR). *Probl. Endokrinol.* 1970, 16(1), 90–6 (Russ). ACTH (6 or 7 units) and estradiol dipropionate (100 μg) administered daily for 10 days to sexually mature male rats caused hypertrophy of the adrenal cortex, increased the activity of 3β-ol dehydrogenase and the RNA content, and reduced the amt. of ascorbic acid in the fascicular and reticular zones of the adrenal cortex. Similar morphol. changes developed in the cortex under the action of estradiol, and ACTH confirmed the fact that increased activity in the cortex during administration of estrogens is caused by excess accumulation of endogenous ACTH in the blood. Testosterone propionate (20 mg) and somatotropin (STH) (1 mg) administered daily for 10 days caused similar hypertrophy of the adrenal cortex, indicating anabolic action of these hormones. STH did not significantly affect the function of the adrenal cortex, but testosterone reduced the activity of 3β-ol dehydrogenase in both the fascicular and reticular zone cells.

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19751724

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

1/2 012 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--DETERMINATION OF THE ACTIVITY OF ISOENZYMES BY AGAR GEL ELECTROPHORESIS -U-

AUTHOR-(04)-SURINOV, B.P., KASHKIN, K.P., BOCHKOVA, D.N., KUZINA, A.A.

COUNTRY OF INFO--USSR

SOURCE--LAB. DELO 1970, (4), 240-3 (RUSS)

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ISOENZYME, AGAR, ELECTROPHORESIS, RAT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0966 STEP NO--UR/9099/70/000/004/0240/0243

CIRC ACCESSION NO--AP0133052

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

2/2 012 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0133052

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HORIZONTAL AGAR GEL ELECTROPHORESIS OR RAT LIVER TISSUE YIELDED 9 BANDS OF ESTERASE, 4 OF ACID PHOSPHATASE, AND 2 OF ASPARTATE AMINOTRANSFERASE, AND RAT BLOOD SERUM YIELDED 12 BANDS OF PROTEIN AND 3 BANDS OF ALK. PHOSPHATASE. THE 3 ALK. PHOSPHATASE BANDS WERE VERY CLOSE TOGETHER AND WERE PROBABLY NOT ISOENZYMES BUT ARTIFACTS. FACILITY: LAB. RADIATS. IMMUNOL., INST. MED. RADIOL., OBNINSK, USSR.

UNCLASSIFIED

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

172 022 UNCLASSIFIED

TITLE--IMMUNOCHEMICAL AND ELECTROPHORETIC STUDY OF MULTIPLE FORMS OF ESTERASES OF CARBONIC ACID ESTERS IN RATS -U-

AUTHOR-(03)-KASHKIN, K.P., SURINOV, B.P., BOCHKOVA, D.N.

COUNTRY OF INFO--USSR

SOURCE--BYULLETEN' EKSPERIMENTAL'NOY BIOLOGII I MEDITSINY, 1970, VOL 49, NR 6, PP 39-42

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ESTERASE, LIVER, DIGESTIVE SYSTEM, PANCREAS, LUNG, SPLEEN, BRAIN, BLOOD SERUM, CHOLINESTERASE, ISOENZYME

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/0680

STEP NO--UR/0219/70/049/006/0039/0042

CIRC ACCESSION NO--AP0131283

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

2/2 022 UNCLASSIFIED

CIRC ACCESSION NO--AP0131283 PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN EXPERIMENTS ON AUGUST RATS INVOLVING THE USE OF ENZYMOELECTROPHORESIS IN AGAR GEL THE AUTHORS INVESTIGATED THE SPECTRUM OF ESTERASES OF CARBONIC ACID ESTERS OF THE HYALOPLASMA OF CELLS OF THE LIVER, MUCOUS MEMBRANE OF THE STOMACH, SMALL AND LARGE INTESTINE, PANCREAS, LUNGS, KIDNEYS, SPLEEN, TESTES, BRAIN AND BLOOD SERUM. USING THE DIFFERENCES IN THE SENSITIVITY OF ESTERASES OF DIVERSE TYPE TO THE EFFECT OF A NUMBER OF INHIBITORS (ORGANOPHOSPHATES, SULFHYDRYL REAGENTS, PROSERINE, CUSO SUB4) AMONG RAT TISSUE ESTERASES THE AUTHORS REVEALED UP TO 7-8 ISOFORMS OF ACETYLESTERASES AND 6-7 CARBOXYLESTERASES, IN THE BLOOD SERUM ALSO ARYLESTERASE AND TWO CHOLINESTERASES. IT IS SHOWN THAT IRRESPECTIVE OF THE ORIGIN THE ORGANS, DEVELOPING FROM THE SAME AND DIFFERENT EMBRYONIC SHEATHS, ARE DISTINGUISHED BY A DEFINITE SPECTRUM AND A RELATIVE ACTIVITY OF ISOFORMS OF DIVERSE TYPES OF ESTERASES. THE MOST COMPLEX SET OF ACETYL AND CARBOXYLESTERASES AND HIGH SPECIFIC ESTERASE ACTIVITY ARE REFERRED TO CELLS OF ORGANS OF ENDODERMAL ORIGIN AND, IN PARTICULAR, BY HYALOPLASMA OF CELLS OF THE MUCOSA OF THE STOMACH, SMALL INTESTINE AND LIVER OF RATS. WITH THE AID OF RABBIT PRECIPITATING SERA AGAINST THE HYALOPLASMA OF CELLS OF A NUMBER OF RAT ORGANS IN THE COMPOSITION OF ISOFORMS OF RAT ESTERASES THERE WERE REVEALED ORGANOSPECIFIC COMPONENTS AND ISOENZYMES ANTIGENS PREVALENTLY CONTAINING IN CERTAIN SUBCELLULAR STRUCTURES MANY OR SOME ORGANS. FACILITY: INSTITUTE OF MEDICAL RADIOLOGY OF THE ACADEMY OF MEDICAL SCIENCES OF THE USSR, OBNINSK.

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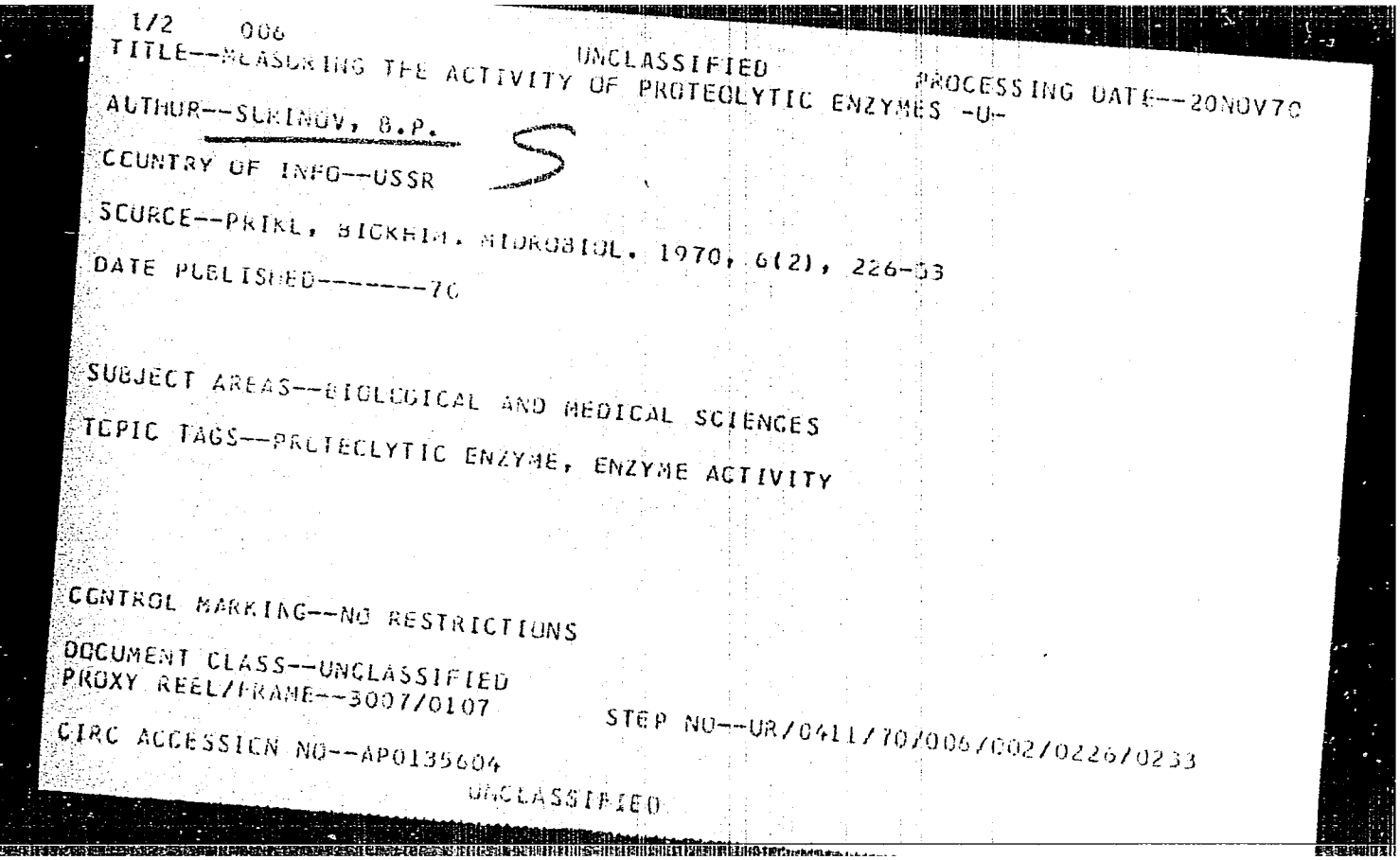

1/2 006 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--MEASURING THE ACTIVITY OF PROTEOLYTIC ENZYMES -U-

AUTHOR--SUKINOV, B.P.

COUNTRY OF INFO--USSR

SOURCE--PRIKL. BIOKHIM. MIKROBIOL. 1970, 6(2), 226-33

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PROTEOLYTIC ENZYME, ENZYME ACTIVITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/0107

STEP NO--UR/0411/70/006/002/0226/0233

CIRC ACCESSION NO--AP0135604

UNCLASSIFIED

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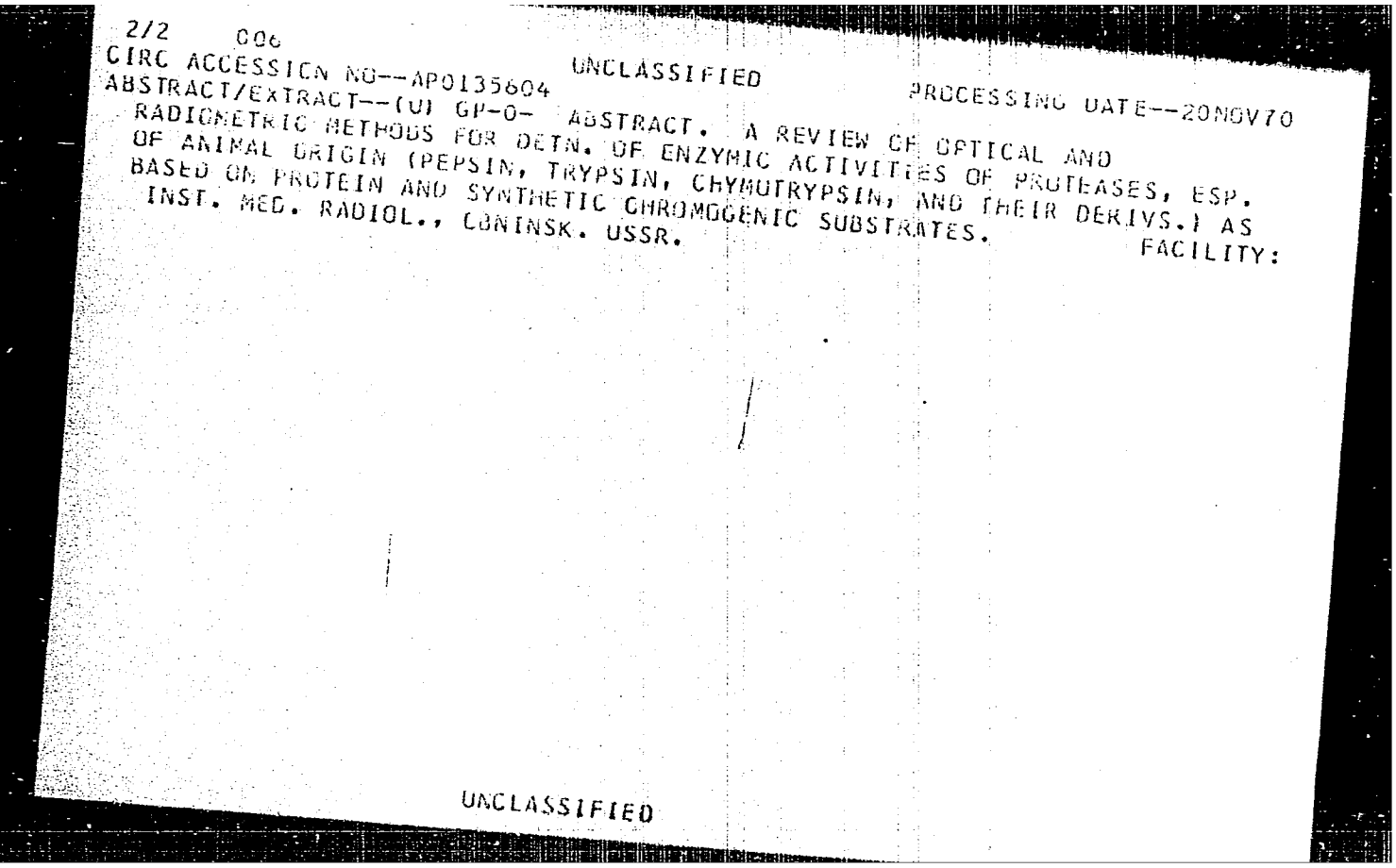

2/2 006 UNCLASSIFIED
CIRC ACCESSION NO--AP0135604 PROCESSING DATE--20NOV70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A REVIEW OF OPTICAL AND RADIOMETRIC METHODS FOR DETN. OF ENZYMIC ACTIVITIES OF PROTEASES, ESP. OF ANIMAL ORIGIN (PEPSIN, TRYPSIN, CHYMOTRYPSIN, AND THEIR DERIVS.) AS BASED ON PROTEIN AND SYNTHETIC CHROMOGENIC SUBSTRATES.
INST. MED. RADIOL., CONINSK. USSR. FACILITY:
UNCLASSIFIED

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

USSR

UDC 536.3:535.341

SURINOV, Yu. A., KISELEVA, Ye. S.

"Transfer of Radiation and Radiant Heat Exchange in a Cylindrical Chamber of Finite Length, Filled with an Absorbing Medium"

Izvestiya Akademii Nauk SSSR, Energetika i Transport, No 6, 1971, pp 105-115.

ABSTRACT: An application of an approximate analytic method for solving integral radiation equations to numerical calculation and investigation of local boundary and internal radiant heat exchange characteristics for a cylindrical chamber of finite length, filled with a moist, absorbing medium is presented. A simple, approximate, engineering method is suggested for determination of local and mean generalized angular radiation factors, based on the application of the theory of the mean and averaging of transmission factors and optical lengths. Using this method, distinguished by its physical clarity and simplicity, all the main optical-geometric and energetic characteristics of radiation are calculated at the boundary and internal points of the field of radiation. The new method is compared with existing approximate methods for calculation of multiple integrals. Both upper and lower estimates of the error of the method and results of calculation are presented.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

USSR

UDC 51.621.391

SURINOV, Yu. A.

"The Problem of Extremal Properties of Entropy in Information Theory"

Tr. Mosk. Ekon.-Statist. In-ta. Fiz-mat. n. [Works of Moscow Economics-Statistics Institute, Physical and Mathematical Sciences], Part 2, 1970, pp 102-113 (Translated from Referativnyy Zhurnal Kibernetika, No. 4, April, 1971, Abstract No. 4 V499 by V. Prelov).

Translation: Methodological Work. Known extremal properties of differential entropy are presented relative to certain classes of continuous random quantities.

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USSR

UDC 51.621.391

BOYARINOV, I. M.

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

USSR

UDC 519.21

SURINOV, Yu. A.

"Comments on the Formulation and Proof of of Certain Theorems from the Theory of Probabilities"

Tr. Mosk. Ekon.-Statistp. In-ta. Fiz-mat. n. [Works of Moscow Economics-Statistics Institute, Physical and Mathematical Sciences], Part 2, 1970, pp 68-88. Translated from Referativnyy Zhurnal Kibernetika, No 4, April, 1971, Abstract No 4 V21 by V. Prelov).

Translation: This is a methodological work. Comments are made concerning the presentation of certain factors relating to the properties of mathematical expectations, dispersions and correlation characteristics of random quantities.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

USSR

SURINOV, Yu. A.

UDC: 517.9:536.24

"Evaluating Errors in Approximate Solutions of Integral Radiation Equations"

Tr. Mosk. ekon-statist. in-ta. Fiz.-mat. n. (Transactions of the Moscow Economics Statistical Institute, Physical-Mathematical Sciences) 1970, part 2, 150-159 (from RZh-Matematika, No. 3, March 71, Abstract No. 3B316)

Translation: The generalized zonal method, developed in several papers by the author for solving problems of radiation heat exchange in radiating systems, leads to a finite system of integral equations of the second kind. Using average values of the kernels of these equations, the author obtains a system of algebraic equations from which an approximate solution of the integral equations can be obtained. The evaluation of the errors in these solutions is based on the monotonic dependence of the solution of the algebraic equations on the coefficients of this system. L. Bass

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

UNCLASSIFIED

TITLE--DETERMINING THE GENERALIZED ANGULAR COEFFICIENT OF RADIATION BETWEEN BODIES SEPARATED BY AN ABSORBING AND DISPERSIVE MEDIUM -U-

AUTHOR-(02)-SURINOV, YU.A., KOBYSHEV, A.A.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, IZVESTIYA AKADEMII NAUK SSSR: ENERGETIKA I TRANSPORT, NO 1, 1970, PP 101-114

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ANGULAR DISTRIBUTION, RADIATION INTENSITY, PARTICLE ABSORPTION, S MATRIX, INTEGRAL FUNCTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1326

STEP NO--UR/0281/70/000/001/0101/0114

CIRC ACCESSION NO--AP0123284

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

2/2 012 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0123284

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A NEW ANALYTIC METHOD IS PROPOSED FOR DETERMINING GENERALIZED LOCAL PSI (M SUBI, F SUBK) AND INTERMEDIATE PSI SUBIK FOR THE ANGULAR COEFFICIENTS OF RADIATION. THE PRESENCE OF AN INTERMEDIATE ABSORBING AND DISPERSIVE MEDIUM IS CONSIDERED. THE METHOD IS BASED ON THE APPLICATION OF STOKES' THEOREM. THE METHOD MAKES IT POSSIBLE TO CONVEY THE LOCAL ANGULAR COEFFICIENT OF RADIO PSI (M SUBI, F SUBK) FROM THE DF SUBMI AREA TO THE ARBITRARY SURFACE F SUBK AS THE SUM OF TWO INTEGRALS (CONTOUR AND SURFACE). A REPRESENTATION IS GIVEN OF THE PSI (M SUBK, F SUBK) OPTICO GEOMETRIC VECTOR OF RADIATION AS THE SUM OF THE CURL OF A CERTAIN SOLENOIDAL VECTOR TERMED AS THE GENERALIZED OPTICO GEOMETRIC VECTOR POTENTIAL OF RADIATION AND S FUNCTION GRADIENT. GENERALIZED RADIATION POTENTIAL HAS BEEN INTRODUCED AS THE TERM FOR THE S FUNCTION.

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

USSR

UDC: 681.3.06:51

GANEYEV, D. G., GIGLAVYY, A. V., KANDALOVA, N. S., MURTAZI, R. F., MUKHINA, V. N., NEPOCHATYKH, D. P., SURINOVA, R. V.

"An Operational System Oriented for Use in the ASUP Management Systems for ASVT Computer Systems Models"

Tr. N.-i. i proyektn. in-ta po vnedreniyu vychisl. tekhn. v nar. kh-vo (Works of the Scientific Research and Design Institute on Introducing Computer Technology Into the National Economy), 1970, vyp. 5, pp 36-44 (from RZh-Kibernetika, No 11, Nov 71, Abstract No 11V837)

Translation: The paper describes the fundamental principles which lie at the base of development of a small operational system designed for use in the development and operation of ASUP automated systems for management of enterprises with production of discrete type based on an aggregatized system of computer facilities (ASVT). An ASVT mnemocode with a set of macrocommands is used as the programming language in the proposed operational system. The principal functions, make-up and working singularities of the operational system are presented. V. Mikheyev.

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

USSR

UDC: 621.315.592

KAZARINOV, R. F., SURIS, R. A., Physicotechnical Institute imeni A. F. Ioffe, Academy of Sciences of the USSR, Leningrad

"On the Theory of Electrical Properties of Semiconductors With Superlattices"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 7, No 3, Mar 73, pp 488-498

Abstract: The authors consider the problem of the form of the electron distribution function in a semiconductor with a superlattice as well as the relation between the current through such a structure and the electric field in the neighborhood of a resonance current spike due to tunneling of electrons from the ground state of one cell of the superlattice to the excited state of the next cell. Equations are derived for the diagonal elements of the density matrix. These equations are solved for different limiting relations between the probabilities of processes which arise with the passage of current.

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

USSR

KAZARINOV R. F. and SURIS, R. A., A. F. Ioffe Physico-Technical Institute, Leningrad

UDC: 621.315.592

"Injection Hetero-Laser With a Diffraction Grating on the Contact Surface"

Leningrad, Fizika i tekhnika poluprovodnikov, No 7, 1972, pp 1359-1365

Abstract: In injection semiconductor lasers, the p-n junction in which the amplification occurs is also used as a plane dielectric waveguide. As a result, the energy flow incident on the crystal faces acting as the mirrors of a Fabry-Pérot resonator is intense, resulting in destruction of the mirrors and the consequent loss in radiation power. The authors of this paper propose and theoretically develop an idea for the injection laser in which this defect is avoided. By way of introducing the idea, they consider the electrodynamic problem of the behavior of a light wave in a fine, plane dielectric waveguide at a known distance from a metal diffraction grating with a definite period. Formulas are developed for the spectrum of characteristic frequencies of the proposed resonator and for its Q.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220003-7

Acc. Nr: AP0043796

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1970, Vol 58, Nr 2, pp 686-698

Ref. Code: UR 0056

RAREFIED IMPERFECT BOSE GAS IN THE FIELD OF RANDOMLY DISTRIBUTED STATIONARY IMPURITIES

V. A. Gergel', R. F. Kazarinov, R. A. Suris

The behavior of a slightly imperfect Bose gas in the field of randomly distributed impurities is studied. The effect of the impurity atoms on the ground state of the system is determined and found to change the local variation of the condensate density near the impurity atoms. The spectrum and decay of single particle excitations are calculated. The long wave excitation spectrum is found to be acoustic; scattering of the excitations by sound velocity fluctuations induced by the impurity atoms is of the Rayleigh type, i. e. the scattering cross section is proportional to the fourth degree of the excitation wave vector. The results are employed for estimating the light absorption line widths and light amplification due to the Bose — Einstein exciton condensate in semiconductors. For a sufficiently high exciton concentration the width is much smaller than the width of the ordinary exciton absorption line due to scattering of separate excitons by lattice defects imperfections.

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REEL/FRAME
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"Nonlinear Theory of Slow Recombination Waves"

Leningrad, Fizika Tverdogo Tela, Vol 14, No 6, Jun 72, pp 1691-1697

Abstract: The nonlinear problem of propagation of slow recombination waves is considered. The types of solutions are classified, and it is shown that soliton domains are one type of slow recombination waves. The current-voltage characteristic of a specimen with soliton domain is calculated, and the stability of the resultant solutions is analyzed. It is shown that the current-voltage curve for a semiconductor with soliton domain has a negative impedance section.

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USSR

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"Possibility of Suppressing Gunn Domains"

Leningrad, Fizika Tverdogo Tela, Vol 14, No 6, Jun 72, pp 1613-1621

Abstract: The authors investigate the possibility of suppressing Gunn instability of the uniform distribution of carriers in a semiconductor with N-shaped current-voltage characteristic by means of impact ionization of impurity centers with deep-lying levels. The generation of carriers by such ionization compensates for the loss of carriers in the high field region due to the drop in the curve for carrier velocity as a function of the field. It is shown that such compensation is possible only if the characteristic rise time of the electric instability is greater than the impurity capture time of the electrons. In this connection, the sign of the conductivity on frequencies exceeding the capture frequency remains negative, which means that microwave emission and amplification is possible in a large volume of the semiconductor.

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SURKINA, R. M.

DETERMINING THE OSCILLATING MASS PARAMETER FOR THE SKIN COVER OF SOME MARINE ANIMALS

[Article by V. V. Babenko and R. M. Surkina, Kiev; Kiev, Biofizika, Russian, No 5, 1971, izd-vo "Naukova Dumka," pp 94-98]

Elasticity, damping, oscillating mass and tension exert an influence on stabilization of the laminar boundary layer during flow over flexible covers [4]. Assuming that the skin of dolphins also interacts with flow in the boundary layer, we will determine the oscillating mass parameter for their skin cover.

The oscillating mass parameter is expressed in the following way [2]:

$$K_m = \frac{Re_1 M_z}{M_t},$$

where Re_1 is the Reynolds unit number, $Re_1 = U_\infty/\nu$, m^{-1}; ρ is sea water density, kg/m^3; M_z is the total oscillating mass, $M_t = M_1 + M_2$, kg sec^2/m.

According to the mechanical model of the skin covers of dolphins [2], the oscillating mass M_1 is the mass of a unit area of the epidermis (layer 1) and M_2 is the mass of a unit area of the subepidermal layer (layer 2). The thickness of layers 1 and 3 must be known for determining M_1 and M_2.

The figure shows the results of measurements of the thickness of individual layers of skin along the body of a common dolphin 1.45 m in length. The measurements were made using samples of skin taken at points of intersection of lateral and longitudinal planes passed through the body. In the figure the lateral sections are numbered, whereas the planes passed longitudinally through the body are designated by solid and dot-dashed lines and by dots. Since the measurements were made using samples fixed in formalin (see figure, c, d, e) and celloidin was used in setting the specimens (see figure,

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SURKINA, R. M.

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STRUCTURE AND FUNCTION OF THE SKIN MUSCLES OF DOLPHINS

[Article by R. M. Surkina, Kiev, Kiev, Biofizika, Russian, No 5, 1971, Izd-vo "Naukova Dumka," pp 871-877]

There are several hypotheses concerning the decrease in hydrodynamic resistance during the movement of dolphins. One of them is based on the supposition of the presence of damping properties in the skin of a dolphin /1,2,15/. Test ing of hydrophobicity /2/. Some researchers postulate the existence of a traveling wave passing through the dolphin's body /11,14/. Formation of the latter is possible only in the presence of a special muscular apparatus in the animal's skin.

The first mention of the presence of muscles in the skin of dolphins and whales appeared in the middle of the last century /13/. However, a detailed description of the skin muscles was not given. Considerably later, in an investigation of the muscles of a zone of the frontal extremity of a common dolphin A. N. Drushinin noted the strong development of the skin muscles in this animal /4/. In examining the sections of researchers on the exceptional degree of expression of panniculus carnosus in cetaceans. In later studies devoted to the skin structure of cetaceans, the skin muscles were not mentioned for completely unknown reasons. Even in the most recent studies of Soviet and foreign authors /5,6,8,16/ devoted to a detailed study of structure of the skin of dolphins, no information is given on the skin muscles.

However, the literature makes reference to the presence of muscle fibers or a skin-muscle layer in a number of aqueous and semi-aqueous animals /1,3,4,7,9,12,13,18/. Moreover, individual researchers postulate that in those animals bundles of muscle fibers can form folds on the body surface which are important for rapid movement /9,12/. Accordingly, it is of great interest to study the structure of the skin muscles of

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SURKINA, R. M.

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ARRANGEMENT OF DERMAL STRIATIONS ON THE BODY OF THE COMMON DOLPHIN

[Article by R. M. Surkina, Kiev; Kiev, Zoologicheskiy Zhurnal, "Naukova Dumka," Russian, No 5, 1971, pp 783-794]

A still unsolved problem is the registry of the movement of water flowing around the body of a swimming dolphin or whale. There are many indirect proofs on the basis of which one can determine the mean orientation of the bypassing flow and the velocities of its components associated with it. In the opinion of some authors, the arrangement of dermal striations along the bodies of rapidly swimming animals is one of those indirect proofs.

According to our data, the skin of a dolphin consists of several layers: the epidermis, lying at the surface, the dermis situated beneath it, the skin muscle tissue, and the subcutaneous fatty tissue [10,12]. The thickness of the dermis in the common dolphin attains 1-2 mm. The dermal striations are situated on the boundary between the epidermis and the dermis; those are outgrowths of the epidermis and the dermal papillae. They can be seen clearly in microspecimens. With the use of a special research method, when the upper layer of the epidermis is cut away for 2/3 of its thickness with a sharp razor the entire body surface exhibits clearly visible epidermal ridges arranged in rows in the depth of the epidermis and dermal striations between them (fig. 1). There are four-six dermal striations (ridges) per millimeter of skin.

The dermal striations are very well developed in cetaceans. Some researchers assert that the dermal striations are arranged parallel to the body axis [13, 15, 18, 19, 20, 23]. However, the authors of those studies base their conclusions on an analysis of individual pieces of the skin of those animals.

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